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THERMAL ENHANCED PACKAGE FOR BLOCK MOLD ASSEMBLY

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CROSS REFERENCE TO RELATED APPLICATION

is a 371 of PCT/US03/29569 filed 09/23/2003 which

Examiner

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This application claims the benefit of U.S. Provisional Patent Application Number 60/415,189 filed on 30 September 2002, which is incorporated by reference herein in its entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention:

This invention relates to semiconductor device packages. More particularly, this invention relates to thermally enhanced, molded plastic semiconductor device packages.

2. Description of the Related Art:

Molded plastic packages provide environmental protection to integrated circuit devices (dies). Such packages typically include at least one semiconductor device (die) having its input/output (I/O) pads electrically connected to a lead frame type substrate or an interposer type substrate, with a molding compound coating the die and at least a portion of the substrate. Typically, the I/O pads on the die are electrically connected to bond sites on the substrate using either a wire bonding, tape bonding, or flip-chip bonding method. The lead frame or interposer substrate transmits electrical signals between the I/O pads and an electrical circuit external to the package.

In semiconductor device packages having a lead frame type substrate, electrical signals are transmitted between at least one die and external circuitry, such as a printed circuit board, by an electrically conductive lead frame. The lead frame includes a plurality of leads, each having an inner lead end and an opposing outer lead end. The inner lead end is electrically connected to the I/O pads on the die, and the outer lead end provides a terminal for connecting to the external circuitry. Where the outer lead end terminates at a face of the package body, the package is known as a "no-lead" or "leadless" package.

Examples of well-known no-lead packages include quad flat no-lead (QFN) packages, which have four sets of leads disposed around the perimeter of the bottom of a square package body, and dual flat no-lead (DFN) packages, which have two sets of leads disposed along opposite sides of the bottom of a package body.